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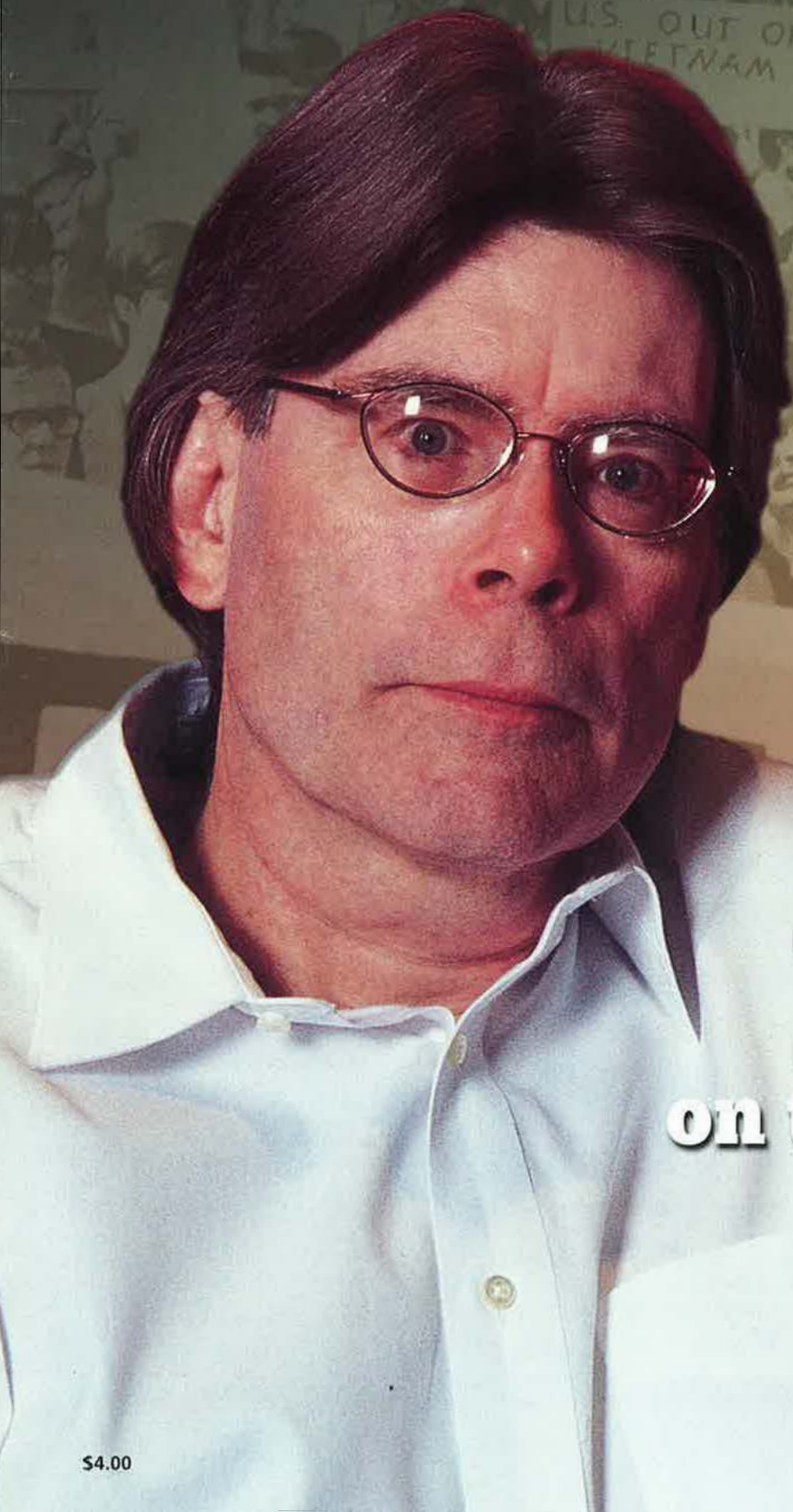
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DECEMBER 2001 / JANUARY 2002

UMaine Today

CREATIVITY AND ACHIEVEMENT AT THE UNIVERSITY OF MAINE



Stephen **KING** on the '60s

Reflections
of a
campus
activist

\$4.00

From the President

AS MAINE'S LAND-GRANT university, The University of Maine has a long-standing national reputation in fields most people quickly associate with land-grant schools, such as engineering, agriculture, and natural sciences. We're proud of that reputation.

However, the prominence of those programs often overshadows the fact that in most states, the land-grant university also includes unparalleled excellence in the liberal arts and sciences. Such also is the case in Maine. Even with outstanding liberal arts

colleges such as Bates, Bowdoin, and Colby, UMaine's College of Liberal Arts and Sciences each year serves more students, offers more degree programs, and confers more degrees than any other public or private school in the state. The quality behind those numbers is why UMaine and those three schools are the only ones in Maine to qualify for a chapter of Phi Beta Kappa, the nation's most prestigious honor society.

A strong grounding in liberal arts and sciences is important in career and professional development. Our society depends on citizens and leaders who understand the history and perspectives of peoples, cultures, and conditions, and who have the skills to solve problems creatively, work together and communicate effectively, and complete projects successfully.

One way we intend to provide that experience is through expanding our current Honors Program — one of the nation's oldest, by the way — into a larger, full-fledged Honors College, one that will bring together ideas and perspectives from across our academic disciplines.

UMaine's Honors College offers the best of both academic worlds: the rigor and relative intimacy of small, select liberal arts colleges; and the breadth and diversity of a university education where students are offered highly focused programs in engineering, the physical sciences, and professional development. Thus, the Honors College represents the unique strength of UMaine itself: a school with the complexity of a large university but small enough to offer students a welcoming, desirable sense of familiarity, place, and comfort.



Peter S. Hoff
President

EDITOR'S NOTE: The October/November issue of *UMaine Today* was published a few days prior to the unexpected death of men's ice hockey coach Shawn Walsh, whose courageous battle with cancer was featured in that magazine. Walsh's health took a dramatic downturn during the two weeks prior to his passing on Sept. 24 at the age of 46. Walsh was a high-profile coach whose leadership went beyond winning two national championships. During nearly 17 years at the University, he inspired tens of thousands of people in Maine and beyond to believe in themselves, to set high aspirations, and to overcome adversity through perseverance and a positive attitude.



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Located in Orono, Maine, The University of Maine is the state's land-grant and sea-grant institution. UMaine serves its home state through its explicit statewide teaching, research, and public service outreach mission. Offering 90 four-year, 61 master's, and 24 doctoral degree programs, UMaine provides the most varied and advanced selection of programs available in Maine. The Carnegie Foundation for the Advancement of Teaching classifies UMaine as a Doctoral Research Extensive university, the highest classification.

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The famous author reflects on his four years as a UMaine student in the late 1960s and the evolution of his politics, from those of a clean-cut young Republican from a small southern Maine town to those of a long-haired anti-war protester and campus activist.

6 Seeing the Forest for the Trees

For nearly a quarter-century, Steve Sader has used remote sensing technology to monitor the condition and extent of temperate forests in the United States and tropical forests in Central America.

8 For Love of Language

As a poet, professor and publisher, Constance Hunting makes her distinctive mark on the literary world.

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For Michael H. Lewis, land, sea and sky have multiple levels of meaning. In his art, he engages the mysterious and gives shape to the unknown.

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UMaine researchers in the Department of Spatial Information Science and Engineering are developing technology that could automatically, instantly analyze security video and immediately alert authorities to safety concerns.

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In the years before, during and after the War of 1812, smuggling was a way of life. In North America, no place did it better than Maine communities on the shore of Passamaquoddy Bay.

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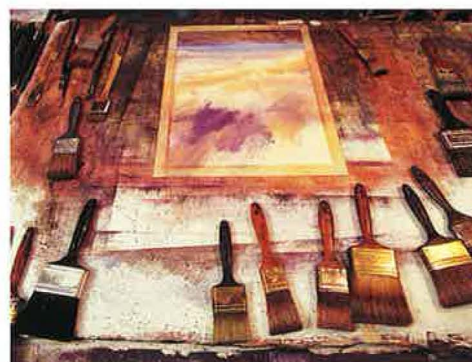
Every July and August, University of Maine Cooperative Extension Nutrition Aide Christine Finemore provides nutrition education to the children of migrant workers in Maine.

11 student focus 22 insights

Neuroscience Project Targets
Brain Chemistry
Studying Marine Resource
Management on Capitol Hill

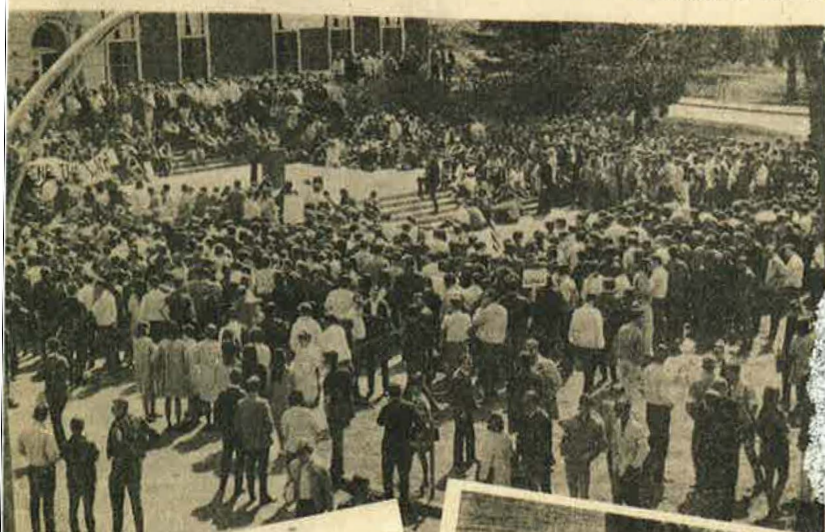
Sensors for Chemical and Biological Agent
Detection
Ambassador Lectures on Campus
Quintessential Quartet
A Hole in One for the Maine Economy
Fighting Fungus in the Blueberry Barrens

Hay!
Wired for Wireless
Patent to Help Paper Mills
Technology Enhances Native American Studies
Women and War
Snowmobiling Cleaner, Quieter



Debate Develops Over Campus Rioting As UM Bond Issue Is Being Considered

NEWS State House Bureau) Lake, said the SDS core at the university numbers about 30 "and they have not attempted to march on us or take over." He cited an erroneous headline in an Associated Press report that the overwhelming majority of students at the university do not belong to SDS. "I am very proud of young people at the university."



U-M Anti-Harrassment As 700 March At U. Of Maine

By DENNIS MILLS
Some 700 peace demonstrators marched around campus during the anti-war demonstration. The letter was sent to the Free Speech and Assembly Review Board. But at least one fraternity, Nu, has taken exception to the action of the IFG.

Harvard Students Protest President's Police Call-Up

THE ASSOCIATED PRESS
President of Harvard University Friday defended his call to police to clear a school building from a school building as 20 per cent of the school's students were protesting.

End the War NOW Muskie believes youth needs voice in gov't

by Sharon Peters
...ed by what the youth ...ds and ...the crowd that the one would use to describe 1968 ...tolerance". "There is a great ...tance of Americans to listen to ...Americans," he stated. "C...to sneak but ..."

Draft laws still in effect, despite end of inductions

death officially ended July, 1973. The ...ent's power to induce men into ...armed forces expired, leaving the entire Selective Service System in operation as a ...of the Federal ...Upon signing the card you become a registrant with the Selective Service System. classification while he is in Class I-H, or a deferred classification; his claim will not be considered by the local board until he is ...



Photo by Toby Hollis

Stephen King on the '60s



Reflections
of a
campus
activist

College is always a time of change, I guess, the last major convulsion of childhood, but I doubt there were ever changes of such magnitude as those faced by the students who came to their campuses in the late sixties.

Peter Riley in *Hearts in Atlantis*

LIKE HUNDREDS OF his contemporaries on The University of Maine campus during the late 1960s, Stephen King struggled to come to terms with a world turned upside down by the Vietnam War. Arriving in Orono as a first-year student in 1966, King's politics changed from those of a clean-cut young Republican from a small southern Maine town to, by the time he graduated in 1970, those of a long-haired anti-war protester and campus activist.

King and other student leaders from UMaine's Vietnam War era reunited at their alma mater Oct. 3 for a special panel discussion, "Thirty Years Later: Reflections on Campus Activism by Those Who Led It." The panel was assembled to tie into UMaine's 2001-2002 Class Book, King's *Hearts in Atlantis* (see related story on page 5).

Along with King, the panel featured two members of the Class of '69: Michael Carpenter, a former Maine Attorney General; and Richard Davies, a former state legislator and current public policy consultant. Joining them were Christine Hastedt ('68), co-founder of the Maine Equal Justice Project and the Maine Equal Justice Partners; Trish Riley

('73), executive director of the National Academy for State Health Policy and current chair of UMaine's Board of Visitors; and Clifford Rosen ('71), a medical doctor and national expert on osteoporosis. Moderating the discussion was National Public Radio's Brian Naylor, a 1979 UMaine graduate.

Speaking to a capacity crowd at Hauck Auditorium, they reflected on how their UMaine experience affected their views of the world and their lives. Excerpts from King's comments follow.

Getting involved

"For me it was a progression. My folks came from Scarborough, Maine. They were deep Republicans, to the extent that during the '30s, nobody in my mother's family would say



Roosevelt's name; he was just 'that man in the White House.' I worked for (Republican) John Reed as governor, and I worked for Barry Goldwater in his campaign in 1964. The first thing my wife tells people we meet: 'In 1968, Steve voted for Richard Nixon.'

"The first (protest) I remember was in 1967, a boycott of grapes sold at the supermarkets in the Bangor area. From there, I became part of this (anti-war) movement. There was a sit-in at East Annex where Dow Chemical was holding job interviews. We all knew that Dow made napalm. That was what we were defoliating Vietnam with. From there, it was a quick progression (in activism).

"When I came on campus in 1966, I lived in Gannett Hall and my roommate was Harold Crosby of Whiting, Maine. He knew what he wanted to do (become a dentist), he did it and is doing it today. Harold is in *Hearts in Atlantis*. By January 1967, he had decided that we were wrong to be in Vietnam. To this day, I am mad that Harold beat me to that (realization).

"There was a tremendous amount of excitement about being involved with the anti-war protests. And there were a lot of other things involved, boiled down to three or four strong points — protest the war, protest poverty, protest discrimination against women. It was tremendously exhilarating to be part of it."

A world turned upside down

"The paranoia (on campus) was very high. There were stories of infiltrators from the FBI and Maine State Police in the demonstrations. (They) were supposed to be getting names. It's very difficult now to convey the sense of paranoia we had, and the growing sense of rage that this would go on in the face of what had become a kind of national insanity. You don't know (how bad it was); to walk in front of the (grocery store) at the Westgate Mall and have women come up and look at you with this expression of contempt and say, 'Why don't you get a haircut? Why don't you go to Vietnam? What are you good for?'



"There was a tremendous amount of excitement about being involved with the anti-war protests."

Stephen King

"It was scary right here on campus. It was scary to wake up and find the National Guard had killed four kids on a campus in Ohio (Kent State, May 4, 1970).

"Yet at the same time, I was aware that on the periphery, for all the people who looked like me — the heads, the long hairs, the freaks — there was an entire world right here at the University where the guys were wearing polyester and pullover sweaters and the girls were wearing

A-line skirts and Ship 'n Shore blouses with Peter Pan collars, and they were happy to check in (to their dormitories) by 10 (p.m.) because they had to do those rollers and had to get that stuff all going so they could go on a date that next night. They were involved in dates and football games. Vietnam was somewhere over the horizon."

Turning points

"I came home from college and one of my aunts from Massachusetts was up visiting. I was in the kitchen, and my mother and aunt were in the living room. I heard my aunt say to my mother, 'Why don't you tell him to cut his hair or get the hell out? He looks like a girl and he's talking all this stuff about the government.' My mother said, 'I don't agree with him but he's doing what he believes is right and he's now old enough to think for himself.' My eyes filled with tears and I had to leave the room. I didn't want her to know I had overheard that and she never spoke of it (again).

"(My mother) died of cancer in 1974. In late 1973 when it was clear that she was never going to get better, she was in bed and she grabbed me and pulled me down and said, 'I want to tell you something before I go. You have to promise not to tell your brother.' I said OK, and she said, 'I voted for McGovern.'"

**"Sometimes I'm
not a big
fan of my
generation."**

Looking back

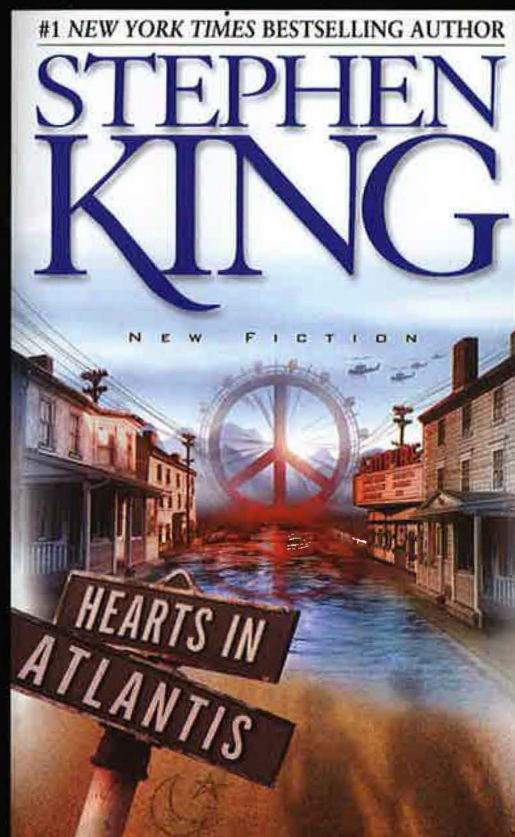
"Sometimes I'm not a big fan of my generation. I think the impact of the activism can be overrated. To my mind, a lot of people — even the people involved in the anti-war movement — moved to the center in politics later on. I think an awful lot of people got involved with, 'How much money can I make?' and, 'God, I know that

Reagan's politics are a little bit

Neanderthal, but Jesus, he is good for the economy. My portfolio is getting so big. Not only can I afford to put my kids through school, but I can afford some blow."

"There was a time when we did have (the ability to change the nation) in our hands, when we literally came maybe within a month, three marches, four demonstrations, three more wrong moves by the idiotic Nixon and Johnson administrations of changing this country and turning it on its ear. I believe we came that close to changes in policy. There were men with guns; one of them gunned down Bobby Kennedy in 1968 in a hotel kitchen. That made a difference.

"The movie *Easy Rider* ends with one of the guys saying, 'We blew it.' I put that in the front of my book (*Hearts in Atlantis*)."



Every year for the past decade, a class book has united University of Maine students and faculty in a common dialogue about literature and contemporary issues.

This year's class book has done that and much more. The book, *Hearts in Atlantis*, is written by UMaine alumnus Stephen King. It is composed of three short stories and two novellas, one of which relates the experiences of a first-year student at The University of Maine in 1966.

Hearts in Atlantis, a movie starring Anthony Hopkins that is based on King's book, was released early this fall.


Some of the issues raised in the book assumed even greater importance for readers following the Sept. 11 terrorist attacks on the World Trade Center and the Pentagon. Students are drawing parallels between their reactions to terrorist threats and how the college-age characters in King's book cope with the Vietnam War.

Hearts in Atlantis is a teaching tool in a number of UMaine classes this academic year, including the English course "The Class Book: Stephen King and the 1960s," in which students study the Vietnam War era and how it subsequently shaped America.

This is the 10th year UMaine has incorporated a class book into its curricula.

For many years, the class book was required reading by first-year students in English 101 classes. Topics raised by the volumes were the focus of campus lectures and panel discussions. In recent years, UMaine's Division of Lifelong Learning has offered non-credit discussion classes and Web-based courses focused on the class book.

UMaine's first class book was *Hen's Teeth and Horse's Toes* by Stephen Jay Gould. All but one of the class book authors have come to campus to lecture, effectively linking the writers with their readers.



SEEING THE FOREST FOR THE TREES

Photo by Toby Hollis

UMaine researcher works with NASA to help save Central American rainforests

STEVE SADER KNOWS the importance of seeing the forest for the trees. The “big picture” of the world’s forests shows their connectedness and health — and the effect that human actions are having on them.

From Sader’s perspective, forests are inextricably linked to political, economic, social and environmental issues around the globe.

“It is well documented in the literature that through tropical deforestation, we’re losing plants and animals that are important to the world. We all can be affected by deforestation, habitat reduction and subsequent environmental deterioration in ways that we don’t usually think about. Even civil wars can happen because of political unrest and economic instability that is directly linked to resource depletion and lack of rural development alternatives.”

For almost 25 years, Sader has monitored the condition and extent of temperate forests in the United States and tropical forests in Central America using data collected by remote sensing satellites — space-age technology that provides researchers with detailed pictures of large land areas by recording reflected light, heat and microwave signals. Sader, director of the Maine Image Analysis Laboratory at The University of

Maine, and his students translate the computerized data into color-coded maps of the Earth, detailing land use, vegetation, habitat diversity, and forest type, density and canopy structure.

Views provided from Earth’s orbiting satellites have many down-to-earth applications — better management of natural resources, heightened public awareness about the environment, and development of conservation policies and strategies. They also can be used to contribute to greater understanding of global climate change.

“Whether talking about the Maine woods or the Central American rainforests, it’s important that a sustainable production of goods and services be maintained through time,” says Sader.

A UMAINE PROFESSOR OF FOREST RESOURCES, Sader has been conducting remote sensing research in Central America since 1978 and in Maine since joining the University’s Department of Forest Management in 1987. Much of his work throughout his career has been in cooperation with NASA’s Office of Earth Science, which is doing remote sensing all over the world in an effort to understand the effects of natural and human changes on the global environment.

NASA is particularly interested in Central America because it is a region for which, until recently, there was little regional inventory or monitoring of the natural resource base. Central America has some of the closest tropical forests to the United States.

"As a region, Central America continues to have one the highest deforestation rates in the world," says Sader, formerly a NASA research forester responsible for temperate and tropical forest research projects conducted at NASA's Stennis Space Center in Mississippi. "It is not that the Central American forest constitutes a big area (say, compared to the Brazilian Amazon) but that the region is losing forests at a rapid rate — around 1.5 percent annually for the past two decades, mostly due to population pressure and lack of alternatives for poor people who clear forests."

CURRENTLY, SADER IS the principal investigator on a \$1 million, three-year contract with NASA to create regional satellite databases to monitor forest condition and environmental change throughout Central America. UMaine has been working with Conservation International and NASA research laboratories to look at land use change in Central America's Mesoamerican Biological Corridor, a chain of protected and proposed conservation areas linking natural habitats from the borders of northern Colombia to southern Mexico.

In 1998, NASA signed a Memorandum of Understanding with the Central American Commission on the Environment and Development supporting research cooperation focused on monitoring the biological corridor. As part of the cooperation, NASA is developing the region's first detailed land-use maps using satellite data.

Creation of the corridor is a "political ideal" based on the premise that conservation of forest cover equates to protection of soils, biodiversity and habitat, Sader says. Although this is an important goal, the real-

ity is its success depends on the stakeholders — primarily the poor — who live on or near these areas.

"If people don't have economically viable alternatives to deforestation for their sustainability, the best laid plans of the government will fail to achieve this goal," Sader says. "That's why deforestation can only be understood holistically, with its links to economic, social, political and environmental forces on regional and international levels."

Now in the third year of the project, Sader and a team of international researchers are developing large regional databases and natural resource maps to create an environmental data information system. In

addition, Central Americans are trained to process and use the data and remote sensing technology, and become research cooperators.

ON CAMPUS, the Maine Image Analysis Lab, designated a National Center of Excellence in Remote Sensing Applications by NASA, is now analyzing new satellite data from throughout the region that will be used to document how the corridor has changed since the late 1980s.

"We want to know how much forest remains in the corridor and how much was lost in the past 10 years. We can see that certain areas have

higher deforestation rates than others. We can monitor the fragmentation of the forests with continued conversion for pasture and agricultural uses, including those areas that were once remote and inaccessible. But we also have good news in that there is more forest still in the protected zones, compared to the unprotected areas.

"A major goal of the project is to bring the science community together in the region," Sader says. "The hope is that it will grow into better cooperation and lead to better science that can be used to conserve and manage the natural resources."

by Margaret Nagle



Photo by Steve Sader

"Deforestation can only be understood holistically, with its links to economic, social, political and environmental forces operating at regional and international levels."

Steve Sader

Steve Sader's remote sensing research with NASA archaeologists has included environmental modeling to locate archaeological ruins and predict where others exist. Data on Maya ruins such as these that dot the Central American landscape can help to answer questions as to how ancient civilizations survived in the tropics, what those conditions were like and why there was decline, both in inhabitants and resources.





For love of Language

Poet and publisher
Constance Hunting on the
melody and mystery of writing

LANGUAGE IS A FEAST TO WHICH
EVERYONE IS INVITED, ACCORDING
TO CONSTANCE HUNTING.

A poet and widely published author,
owner of one of the foremost small
presses in Maine and founder of the
state's first literary magazine, a teacher and mentor
to countless numbers of University of Maine

Photo by Monty Rand

students through the years, Hunting continues to make her distinctive mark on the literary world.

She is a champion of language, a true apostle of the integrity of words. Much of what she has accomplished — the influence she has brought to bear on the literary community in Maine and beyond — has been in the name of language and literature.

In an information age, Hunting's dedication to the deliberateness of language and commitment to create a lyrical artform rather than just communicate may seem out of time. Amid the onslaught of verbiage in our lives, Hunting asks us to hear the words and to feel their meaning, based on her conviction that language has a melody and mystery all its own, that good writing requires no thesauri, and that writers of all ages are on the same literary path, but at different stages.

"I like to look and listen," says Hunting of her love of language. "Place and landscape are important to me, just as Maine is in my work. I remember standing for 15 minutes beside a stream in autumn and just watching the leaves. What a luxury — the color, motion and shapes."

A native of Rhode Island, Hunting pursued her interests in music and writing from an early age. At 7, she started taking piano lessons. She also wrote her first poem. It was about a November sunset.

"That was my track — music, and always reading and always writing," she says.

At Brown University, Hunting studied music and English. When she married and began a family, her training as a classical pianist took a backseat. But not her writing.

"You can't practice (piano) four to six hours a day, but you can write in your head," she says. "Children go to bed early when they're young; then they go to school."

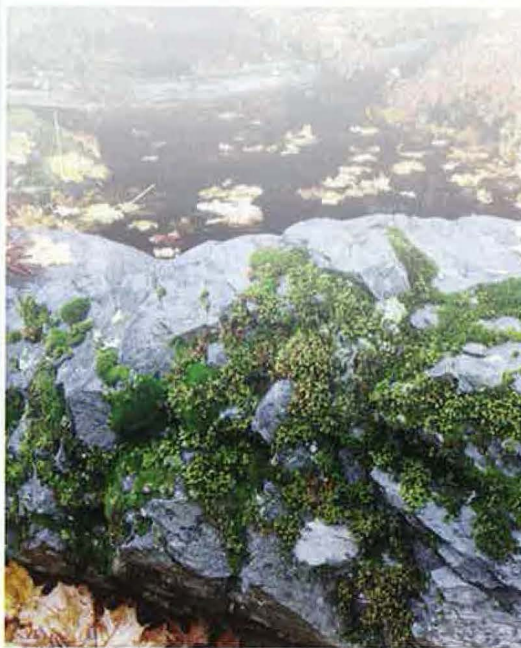
Now, as it was then, says Hunting, "there is never a time that I'm away from the writing. It's always in the back of my head."

In 1960, Hunting's first adult poem, "After the Stravinsky Concert," was published. By the end of that decade, her first book of poems by the same title was published by Scribners.

Of the poem, Iconic poet William Carlos Williams noted that "something clicked for me and when that happens I hope I have sense enough to recognize it as a rare occurrence."

NEW ENGLAND

Stones
are the sheep of these
hillsides
and fog
is the wool of these stones



Poet and novelist May Sarton once said of Hunting's poetry: "I stay puzzled, fascinated, unused to a magic door that has such sudden entrances."

Hunting was named poet laureate of Indiana before moving with her family to Orono in 1968. Her husband, Robert, a scholar of 18th-century literature, served as head of the English Department during his first eight years at UMaine.

"The milestones in poetry are the people who teach you," says Hunting. "They are not necessarily professors but those who make you say, 'Oh, I see,' when you read them. For me, those people included Wordsworth, Shakespeare, of course, and the romantics generally; and T.S. Eliot, Robert Lowell, Elizabeth Bishop. Virginia Woolf was the highest for me in her prose, criticism, novels and diaries. I started reading her when I was 17. She also makes it seem so easy while, at the same time, so many things are going on in the work — a lot of simultaneous mental action."

Throughout her life, Hunting read a lot of fiction, but it was poetry that struck a chord.

"It had to do with the chimes of the sound," she says. "My poetry is very musical, people say. Playing with that sound is the core of my work. I doubt it would be the poetry that it is without the music and its composition — the repetition, themes, sound, transition of keys."

"Some people think poetry is the communication of ideas. I regard it as a much higher example of the possibilities of the human being. If you want to (simply) communicate, send a memo."

Language, says Hunting, is a mystery. Writing — how an author knows which word or combination of words to use to convey meaning — is not an exact science. How one views words and their usage means the difference between communication and creativity.

"Some people use thesauri and think synonyms are equal," says Hunting, who was one of six writers of Maine tapped last year for the debut of "A Good Read: Writers on Writing," a Maine Public Broadcasting series, hosted by author Sanford Phippen. "As a result, they are attempting to communicate rather than to make something. Part of the mystery of language is the cluster of resonance that surrounds a certain word like an aura."

In her poetry, which ranges from imagist lyrics to a verse novella, Hunting is in constant pursuit of “the only word — no easy phrases unless they’re the right ones, no dipping into the basket of clichés.”

“All that makes me a slow writer,” she says. “In some ways, it’s like listening to the oracle. You wait and some words come up from the well. It is not a journal but a mysterious process. It’s an exploration.”

Hunting’s first book was published in 1969. “The royalties were hot in my pocket,” she remembers. “I told myself I’d redecorate some rooms of the house. But I’d always been interested in small presses like Woolf’s in London. Then one day a book came into my hands in the library stacks about presses. I sat on the floor and read it.

“After that, I would wake up every morning thinking, ‘How can I start a press?’ People told me, ‘You’re crazy,’ and that just reinforced the idea.”

Hunting founded Puckerbrush Press in 1971. Seven years later, she started a biannual literary magazine, *Puckerbrush Review*. As a result, Hunting has fostered the aspirations of more than 50 book authors, and countless other writers whose works have been published in the *Review*.

“The press fills a great interest in my life. I like to read stories and poems, and I know certain things need to be in print.”

Hunting knows some of the authors she publishes; many she has never met. Literature published by Puckerbrush contains either Maine or English/European threads.

The press receives up to 40 manuscripts each month. Those chosen for publication are in keeping with Hunting’s definition of good literature. “I look for writing that’s clear but fresh, that is at once new and recognizable,” she says.

One of the hallmarks of the Puckerbrush legacy is the publication of authors who subsequently went on to even wider literary recognition. It has published works by and about renowned writer May Sarton, and debuted such authors as James Kelman, Carolyn Chute, Tema Nason and Lee Sharkey.

Hunting characterizes a small press like hers as “a pleasant little fillip in the literary world.” For those who know Hunting, Puckerbrush is the vehicle through which she successfully champions writing in Maine.

“For me, it’s a kind of a missionary thing, opening up language to people,” says Hunting, who received Westbrook College’s Deborah Morton Award for Literary and Cultural Contributions to Maine in



REVELATION

My grandfather once saw a black-
snake in the act
of swallowing a frog.
Quick as lightning Grandfather
fetched the axe,
smote that snake like thunder.
The frog sprang out and sprang away
across the meadow — likely to start
a new religion. Grandfather said
you never saw a frog
leap so high!

1992. “These are books that are not going to be on a national best-seller list. Instead, they are part of a literary enterprise — experimental, probably elitist, and done for the love of literature.”

Hunting also champions writing in Maine through her work in the classroom, where she has been teaching English full-time since 1978. Students come away from her classes with a new appreciation for language, the self-confidence to find their voices, and a full understanding of Hunting’s knowledge of good writing.

“Teaching, reading poetry, creative writing with students are part of experiencing the whole spectrum,” she says. “I love to get people who are starting this amazing path.”

The journey’s goal is “to find out what language is all about,” says Hunting, who helped found the Maine Writers and Publishers Alliance. “When you have students and see that first light in their eyes when they’re talking about a word with

connotations, it’s rather thrilling.”

Hunting thrives on students’ freedom to approach literature with fresh perspectives, and the ability of poetry to be timeless.

“I can’t teach the same poem in the same way twice. My notes are not yellowed in that I have no notes. I have the source — the poem. When students see the teacher thinking right there with them, they realize (the literature is) alive.”

In the past three decades, Hunting has had 14 books of her own prose and poetry published.

In 1991, *The Myth of Horizon*, a selection of more than 30 poems, placed her in the international literary spotlight. That year found her giving a poetry reading at Harvard, a poetry workshop at the New School in Manhattan and a residency at The Mount in Yorkshire, England.

Hunting’s most recent book, *Natural Things: Collected Poems 1969-1998*, was published two years ago by the National Poetry Foundation, based at The University of Maine.

Next year, Puckerbrush will publish *An Amazement*, a book of new poems by Hunting. Also next year from Puckerbrush: a two-volume set of some of May Sarton’s earliest poems and journal writing.

“I love the life and being here,” says Hunting of her career in Maine. “I just don’t want to miss anything and think later, ‘I wish I had tried that.’ I see my life as a crystal, multifaceted, so that when you hold it up to the light, you see different patterns.”

by Margaret Nagle

Neuroscience Project Targets Brain Chemistry

FOR HER SENIOR HONORS THESIS, University of Maine undergraduate Kristy Townsend of Orono is working with a team of UMaine psychologists and biochemists to determine if alcohol affects brain chemicals associated with circadian rhythms, the body's day-to-day pattern of activity.

Townsend is using two types of antibodies to monitor levels of serotonin, an essential mood-regulating neurochemical, in a region of the rat brain that controls basic activities such as sleep, eating and sex drive. The basic question is whether rats chronically treated with alcohol show chemical changes in that brain region.

Townsend's project is an extension of ongoing behavioral neuroscience research directed by Alan



Rosenwasser, professor of psychology. As a biopsychologist, Rosenwasser focuses on the relationship between the nervous system, mood and behavior.

"I'm attracted to neuroscience because there are so many different interesting areas," says Townsend, who is majoring in biochemistry. "In the future, I'd like to study neurotoxicology, how environmental pollutants affect the brain, and possibly (study) Alzheimer's."

Research on circadian rhythms can lead to a better understanding of problems associated with late-night shift work, workplace accidents and long-distance travel across time zones.

In addition to her coursework, Townsend brings experience from



Photos by Monty Rand

Senior Kristy Townsend and UMaine Professor of Psychology Alan Rosenwasser

an internship at the Mount Desert Island Biological Laboratory this past summer. She worked with scientist David Towle to conduct research on a hormone thought to control chemical concentrations in

the cells of the shore crab. Next winter, she will give a poster presentation on the results of that research at the conference of the Society of Integrative and Comparative Biology in Anaheim, Calif.

Studying Marine Resource Management on Capitol Hill

DEIRDRE GILBERT is spending a year at one of the best places to learn marine resource management — Capitol Hill.

A University of Maine master's degree student in marine policy, Gilbert is in Washington on a prestigious Dean John A. Knauss Marine Policy Fellowship, awarded by the National Sea Grant College Program.

Hundreds of graduate students from throughout the country competed for the 10 positions available in the U.S. Congress and 20 in the Executive Branch. Gilbert is working in Maine Congressman Tom Allen's office this year.

Allen is the Democratic co-chair of the House Oceans Caucus, a bipartisan effort to increase the House of Representatives' awareness of important issues in ocean policy and to advance ocean legislation. During the 106th Congress, the caucus focused on issues of security, governance, biology and pollution.

As a fellow in Tom Allen's office, Gilbert assists with caucus activities in the 107th Congress.

Gilbert received an undergraduate degree in biology and environmental studies from Bowdoin College in 1995. As an undergraduate, she also studied marine biology and rainforest ecology in Australia. In recent years, she conducted research for a U.S. Economic Development Administration project on the collapse of the New England groundfish industry, and assisted in the shoreline ecology program developed at Bowdoin College to mitigate the effects of the Exxon Valdez oil spill.

For her master's thesis research at UMaine, Gilbert has developed a model to assess the impact of marine sanctuaries and other closed fishing areas on groundfish populations and the fisheries they support. In Washington, she has had the opportunity to engage in the national debate about marine protected areas.

"During my graduate work, I developed a firm foundation in some of the marine policy challenges relevant to Maine," Gilbert says. "I also thought that Maine had some unique and exciting approaches to marine resource management, such as co-management in the lobster industry, and increasing emphasis on collaborative research between fishermen and scientists. (In Washington) I've been able to share some of Maine's experience with these efforts with staff from other parts of the country."







Landscapes of the Soul

Michael H. Lewis explores the dichotomy between imagery and reality in his art

Finding the mystery in the obvious, the enigma in the identifiable, the spirituality in the common takes special perception. Capturing such transcendental moments to share them with others is an art.

Michael H. Lewis has been painting landscapes for the past quarter-century. But while he takes inspiration from the physical world, his themes cover a broad spectrum — from Maine's astonishing natural beauty to more inward-looking explorations of emotional and spiritual experience.

For Lewis, land, sea and sky have multiple levels of meaning. In his art, he engages the mysterious and gives shape to the unknown. Each work is "an invitation to move from recognition of the physical world to a more personal, emotional, mystical and spiritual space — the place where the most essential questions of our existence can be explored, where our familiar definition of what is real needs to be boldly reconsidered, and where magic in its truest, deepest sense is still alive."

"Something about the landscape reaches people," says Lewis, a University of Maine professor of art. "Painting the landscape seems to create an alchemy that transforms the recognition of the familiar world into a deeper and more personally profound experience."

LEWIS, A NATIVE of Brooklyn, N.Y., joined the UMaine faculty in 1966. In 1979, his excellence in the classroom earned him the University's highest academic honor, the Distinguished Maine Professor Award.

"I teach art as a language rather than just a set of skills or a particular style," he says. "The question is, 'What do you want to say and



Photo by Michele Stapleton

Michael Lewis has become "an impressionist of a mysteriously secret world of nature," says Vincent Hartgen. "When looking at his present work, I find myself trying to 'listen' through imagination and dream. This is not easy to do with what Mike is exploring. It is like working with words as a poet, tones as a composer, or the stars as an astronomer."

Prayer for Peace (Edge of a plowed field) #7, 1998



Moonlight Path (Winter) #2, 2001



Moonlight Path (Early Spring) #2, 2001

When he paints in his attic studio on campus, Lewis works from memory and invention. The results are landscapes that are not imaginary but also not quite real. They are landscapes that are always changing due to weather, light, seasons. Yet even when captured on paper as in a freeze frame, they are still intimating change.

what are the appropriate materials and techniques to say it most expressively?" It's about encouraging curiosity, imagination, experimentation, discipline and intellectual vigor. I don't separate teaching from any other creative process. It should be a response to all aspects of life, a way of asking questions and working to discover answers."

Lewis' early paintings reflected the emotions of an angry young man in a chaotic world, struggling to know himself better. It was a time of Jimi Hendrix and Ayn Rand, friends sent to Vietnam and race riots in Watts. When Lewis married and had the first of his three children, his works explored themes of intimacy and nurturing, set against the backdrop of the turbulent '60s.

Lewis took inspiration from those also "trying to understand the big questions of what life's about," such as film directors Federico Fellini and Ingmar Bergman, singer Bob Dylan and author James Joyce.

But unlike those who had a largely nihilistic view of the world, Lewis had "a strong impulse toward affirmation and optimism." Painting daily became his way of "protecting and nurturing the human spirit"; he saw the explorations in his paintings as an opportunity to heighten awareness of the limited scope of

our perceptions when living our daily lives.

Lewis also studied Skinner and Freud, but it was Jung who captured his imagination. "I was fascinated by Jung's discussion of the creative unconscious and archetypes. They gave me a growing awareness of myth, spirituality and how individuals could be connected to that kind of experience.

"What it did is throw wide open a sense of what is possible and what can be called real. It was the beginning of my sense that the scientific definition of reality is too limited."

IT WASN'T UNTIL LEWIS moved to Maine that reflections of the natural landscape were seen in his paintings.

"Maine has the kind of environment that provokes awe, and awe for me provokes the big questions," says Lewis, whose work is represented by Uptown Gallery in New York City and has been shown regularly since the mid-'60s in New York, Boston, Baltimore and throughout Maine.

"However, it's not a big jump from awe to sentimental stereotypes. That's why I've always been wary of landscapes. Until I made progress with the turpentine wash technique, I felt I could not approach landscapes from a fresh perspective."

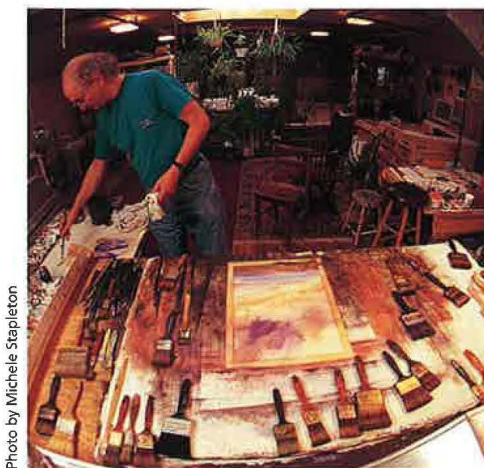


Photo by Michele Stapleton



Moonlight Path (Summer) #2, 2001



Moonlight Path (Autumn) #2, 2001

In 1975, Lewis began developing a technique for using small amounts of oil paint washed with turpentine on a paper surface. He discovered the technique quite by accident when, in frustration, he wiped a turpentine rag across a work in progress. Gradually, as he continued to experiment, he went from traditional oil painting to what has become his trademark turpentine wash. As a result, his art took on a wider, expressive vocabulary.

As with watercolors, the luminosity of these works comes from the white paper showing through thin veils of washed paint. The oil pigment contributes a distinct quality of sensuality and a subtle, expressive energy.

"The method keeps opening new possibilities by the way the paint behaves, the way I can and can't make corrections, the way it achieves a certain clarity of color. While my style may remain recognizable, subtle differences (in technique) and changes in content continue. That's what's so exciting about it."

LEWIS ENGAGES LANDSCAPES literally as well as figuratively. Almost daily for the past eight years, no matter what the weather, he has walked the woods and meadows around Orono, Maine, and the state's coastlines, mostly in Acadia National Park and Lamoine,

accompanied until her death last year by his dog, Sparky.

While Maine is a wellspring of natural beauty, Lewis says his favorite location, and the inspiration for a large number of his works, is Orono, where he is "intrigued by the incredible variation and subtlety."

Art historian Konrad Oberhuber, former director of the Albertina Museum in Vienna, once noted that Lewis' landscapes are in keeping with the romantic tradition found in the works of such 19th-century landscape painters as Caspar David Friedrich of Germany and Britain's John Constable.

Longtime friend, artist Vincent Hartgen, says Lewis has become "an impressionist of a mysteriously secret world of nature."

"He has created a style akin to a blend of surrealism and mysticism reminiscent of the old masters, but he truly is modern in every sense of the word. When looking at his work, I find myself trying to 'listen' through imagination and dream. This is not easy to do with what Mike is exploring. It is like working with words as a poet, tones as a composer, or the stars as an astronomer," Hartgen says.

THE DICHOTOMY BETWEEN imagery and reality is deepened by Lewis' use of a soli-

tary human figure dwarfed against the landscape. In a recent artist's statement, he addressed the role of such a figure by citing a passage from James Joyce's short story, *The Dead*, in which the character, Gabriel, views his wife standing at the top of a flight of stairs:

There was grace and mystery in her attitude as if she were a symbol of something. He asked himself what is a woman standing on the stairs in the shadow, listening to distant music, a symbol of. If he were a painter he would paint her in that attitude. . . . Distant Music he would call the picture if he were a painter.

"Joyce never answers the question of meaning directly, but I took the passage as a strong confirmation of the expressive potency of the enigmatic figure," says Lewis.

Today, it is just as common as not for Lewis' landscapes to include such figures, human or mythical, that add to the sense of scale and symbolism, the familiar and the unknown.

The figure could be a muse or love, or the will to keep dancing as darkness descends, says Lewis. It is imprecise and enigmatic, undefined and variable. Yet it is engaged, listening.

As are we.

by Margaret Nagle

The Camera Never Blinks

WALK INTO A BANK, government building or your favorite retail store and chances are they're there. Watching. Waiting to record your every move.

Security video cameras provide an unblinking record of people's activities hour after hour, day after day. But it takes a person on the other end of the camera to monitor, analyze and interpret the images, and then alert safety personnel or law enforcement officials in the event of a threat or an emergency.

But what if technology could automatically analyze security video taken outside busy facilities such as Oklahoma City's Alfred P. Murrah Federal Office Building or inside Boston's Logan Airport, allowing authorities to be alerted instantly to safety concerns?

At The University of Maine, a research team led by scientists in the Department

of Spatial Information Science and Engineering (SIE) is developing new automated image analysis techniques. The work is funded by a half-million-dollar grant from the National Science Foundation (NSF).

Peggy Agouris, associate professor and researcher in the University's National Center for Geographic Information and Analysis, leads the project with two other UMaine faculty members, Anthony Stefanidis and Kate Beard. Agouris came to UMaine in 1995 from the Swiss Federal Institute of Technology in Zurich, Switzerland.

The scientists are collaborating with faculty members at the University of California at Riverside and Penn State University to harness the volumes of data collected constantly by satellites, autonomously operated vehicles, video cameras and other devices.

The objective is to automatically extract information from digital and video image

sequences, and detect changes in behavior patterns without relying on one or more people to do the work.

"Things change over time, and this change is inherent in the data set," says Agouris, who heads SIE's Digital Image Processing and Analysis Laboratory. "Our goal is to develop a means to make this change explicit and to communicate it to the people who are interested in this information. This is not just about detecting the change. It is about developing (an analytical) framework that is independent of peoples' views as to what changes."

Such new technology could not only analyze ongoing security video but also could squeeze more information out of images collected in the past for military and civilian purposes.

Beyond the security benefits, the automated image analysis

New technology could harness the volumes of data collected constantly by video cameras, satellites and other devices, then automatically extract information from the images.

Peggy Agouris



Photo by Toby Hollis

New technology being developed at UMaine could help in stepped-up building security efforts

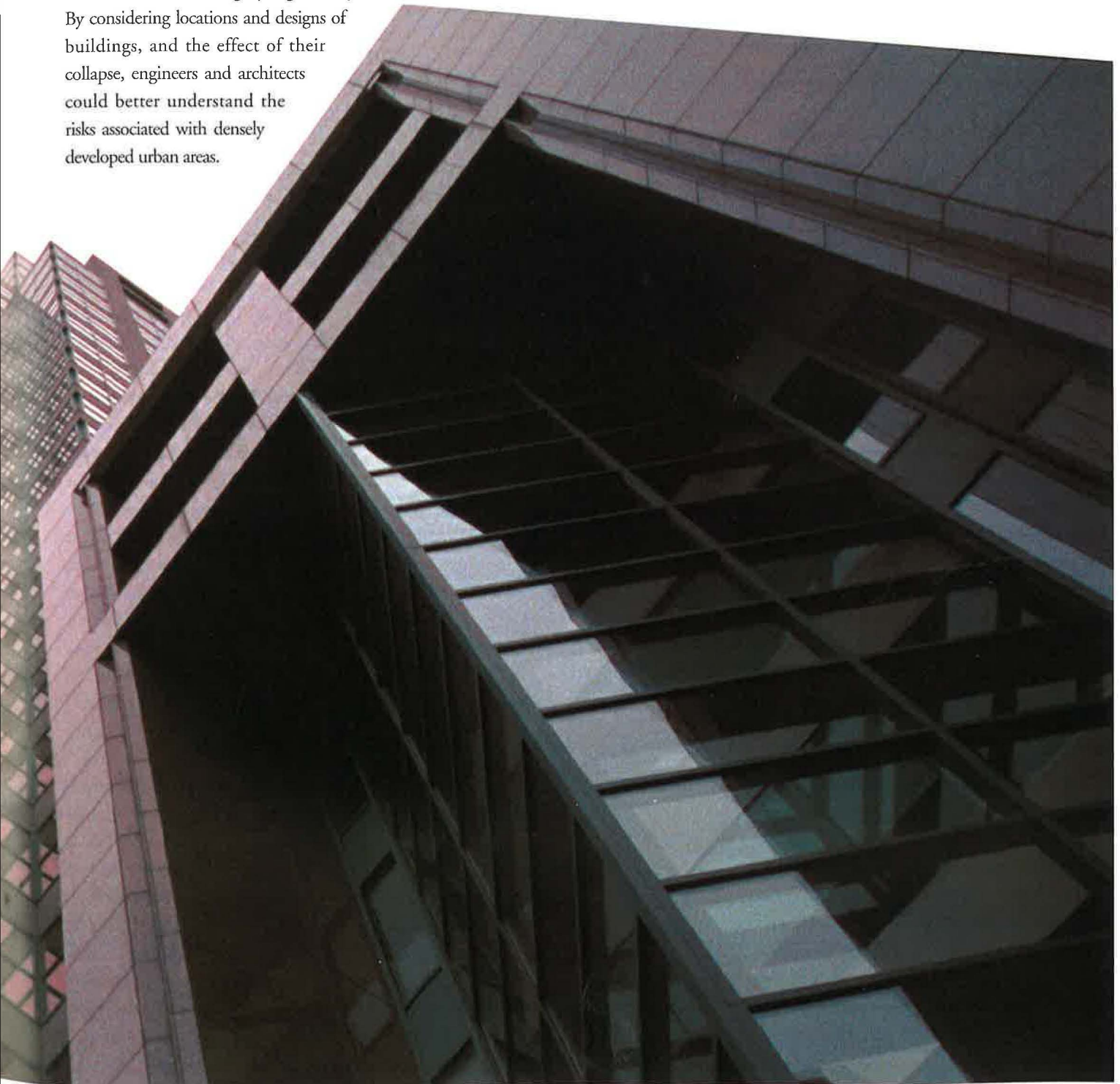
technology has implications for traffic management, agricultural assessments, land-use planning and environmental monitoring.

In addition, automated techniques could be used in response to disasters such as the World Trade Center tragedy, Agouris says. By considering locations and designs of buildings, and the effect of their collapse, engineers and architects could better understand the risks associated with densely developed urban areas.

Agouris and her UMaine colleagues soon will be expanding their image management research with a newly funded \$1.5 million multi-year NSF grant. In that project, scientists will develop the founda-

tion for a type of "geospatial Internet" that will contribute to making accurate geospatial information accessible to anyone, anytime, anywhere.

by Nick Houtman



The Golden Era of Smuggling

When flour and blankets were more precious than gold,
the Maine-Canada border was the place to be,
and smuggling was a way of life.

Alfred Thompson Bricher (American, 1837-1908) *Coast Landscape* c. 1878, Oil
60.41.P Collection of The University of Maine Museum of Art, Gift of Mr. & Mrs. Bernard Rolnick

OFFICER STEPHEN HUMBERT had the law on his side when he was sent to put a stop to the smuggling of gypsum, a mineral, across the border between Maine and New Brunswick at Passamaquoddy Bay.

What he didn't have was the support of Canadians and Americans in the border communities for whom smuggling had been a way of life for years.

Humbert, himself a former smuggler, quickly became the most hated man in the borderland region. He pursued Canadian smugglers to Lubec, Maine, only to have townspeople flock to the shore with rocks in hand to drive him away. Riots broke out in protest of the Canadian government's crackdown. Gangs of American smugglers combed the bay looking for Humbert.

As a last resort, Humbert called in the British Royal Navy. But even large warships in the bay were no match against the long-standing protectionism and community support for smuggling in the region.

Smuggling of gypsum, which was used as a fertilizer for wheat and in making plaster of paris, continued.

"The Plaster War reached its height in 1820," says maritime historian Joshua Smith. "The governments of Nova Scotia and New Brunswick wanted control over the smuggling

with massive resistance from Canadians and Americans. The crossborder level of violence makes the Plaster War important, yet its story has not found its way into history books."

Such omissions prompted Smith to focus

his Ph.D. research at The University of Maine on the history of smuggling in the state. In particular, Smith is studying "the golden era of 'smuggling' — the years before, during and after the War of 1812. It was a time of rising nationalism and border control, of economic instability and patriotism versus the need to feed one's family and the specter of treason.

"In some ways, there's nothing more American than making a buck by trading," says Smith, who recently received a Fulbright Scholarship to continue his research in Canada.

"However, selling goods to the enemy

in time of war is clearly treason. It is an awkward dilemma. People living on the border resented war because it intruded on their lives, but they were not necessarily unpatriotic."



Photo by Monty Rand

Joshua Smith

Map of Passamaquoddy Bay area, *Stuart's Atlas of the State of Maine, 1894-95*,
Special Collections of The University of Maine Fogler Library

of gypsum into the U.S. because taxes weren't being paid. They cracked down by sending Stephen Humbert to the border, but he met

While smuggling was an important problem in American-Canadian relations, it also was a social force within border communities. For the poorest fisherman to the wealthiest community leader, smuggling provided the low-priced, everyday goods such as flour and blankets needed to eke out an existence. Profits from smuggling often went back into communities to build churches and goodwill.

No place in North America did it better than the Maine communities on the shore of Passamaquoddy Bay.

"There was smuggling all along the Maine coast," Smith says, "but, the activity was most concentrated in Eastport. Merchants moved from New York City to Eastport. If they wanted manufactured goods, this was where they needed to be. Eastport had national and continental importance, to the point that the rest of the country began to regard Maine suspiciously. While the rest of the country was suffering economically, Maine was prospering.

"Smuggling was a way of life in Maine through the Civil War."

Smith's research promises to improve our understanding of the subtle intersection of political, economic and social issues that shaped illegal and international trade, says Scott See, UMaine Libra Professor of History. "His work will give us a deeper appreciation of transborder events in North American history."

Smith can identify with 19th-century mariners. The Cape Cod native has a long family history on the high seas. Like their father, Smith and his brothers worked on the water. Smith's grandfather was a merchant mariner and in the Coast Guard during World War II. Men before him were sea captains.

After receiving a degree in history from Scotland's University of St. Andrews, Smith went to Maine Maritime Academy for an associate degree and a professional mariner's yacht operations license. As a licensed mariner, he sailed ferryboats off Massachusetts and cruise ships in the Caribbean.

Smith received a master's degree in maritime history and underwater archaeology from East Carolina University before joining the UMaine community in 1997. In his Ph.D. work, Smith has tapped University resources in maritime history and Canadian studies to get a clearer picture of the turn-of-the-19th-century history of Maine's coast.

"When I was going to Maine Maritime Academy, local history books talked about smuggling during the War of 1812, when the

British occupied Castine, but the details were vague," he says. "The fact that smuggling was so prevalent in reality yet disguised in the histories hooked right into me."

In his dissertation, "The Rogues of 'Quoddy: Smuggling in the Maine-New Brunswick Borderlands, 1783-1820," Smith chronicles the booming business that made the Eastport area one of the most notorious smuggling regions in North America at that time. It was to the point, Smith says, that "if you were headed to 'Quoddy, it was assumed you were involved in illicit activity."

In addition, he also is exploring the subtext of this period in history — why people concealed the truth about smuggling in subsequent years.

"Right after the American Revolution, Maine was full of people who fought in the war and ideally shouldn't have been getting along with those in New Brunswick, a loyalist province harboring exiles like Benedict Arnold," Smith says. "Yet after the war they were trading, even when it was illegal. There's the paradox."

Canada and the British colonies had access to manufactured goods such as silk and tinware that Mainers

didn't have after the war, Smith says. Maritime provinces needed flour. Nova Scotia also had gypsum, considered a valuable fertilizer for wheat.

"In addition to the goods, there were many family bonds between the Maritimes and New England. For so many people in the region, a border did not distinguish Maine and the provinces. People want to trade, and trying to restrain that proves to be expensive, embarrassing and completely ineffective.

"If you don't let people trade, they will be smugglers. From there, it's a short step to more heinous crimes like piracy."

Despite the regional ties, America as a young nation was trying to take control of its borders. President Thomas Jefferson requested all international commerce stop between America and foreign countries; Congress passed the Embargo Act in 1807. But Jefferson failed to understand the nature of maritime communities. The embargo lasted a year.

The federal government repeatedly tried to stem the smuggling tide, Smith says. "If there was a local official of the government in the area, he was quickly overwhelmed by the resistance of united communities. Even deputizing others didn't help. The result was the federal government sent in the U.S. Army and Navy to stop the smuggling, but the locals continued to be good at subverting this force."



Winslow Homer (American, 1836-1910) *Dad's Coming* 1873, Wood engraving 80.46.G Collection of The University of Maine Museum of Art, Gift of Mr. & Mrs. A.A. D'Amico

From the Isles of Shoals to Eastport, smuggling thrived on the coast of Maine. No place in North America did it better than the Maine communities on the shore of Passamaquoddy Bay.

Tactics to undermine authority ranged from threats to burn down the homes of federal customhouse officers to supplying alcohol to officials with a weakness for drink. "The methods to get around the officials were largely nonviolent and as unsophisticated as the smuggling," says Smith. "Often it was a matter of waiting until darkness fell or the fog rolled in, then running like hell."

The typical smuggler was a fisherman, Smith says. Then there were the merchants from New York, adventurers seen as troublesome by communities. They were more violent, bringing heat from the government with them.

Using informants who were lured by financial incentives, the government did succeed in seizing some merchandise. However, the climate such informants created took its toll on communities.

"Huge amounts of goods were seized and auctioned by the federal government," Smith says. "As part of the transaction, seizing officers and informants received some of the proceeds. The idea that some local people could benefit from the embargo by being informants ripped communities apart."

At the same time, major smuggling venues like Eastport benefited from the illegal imports and exports. From 1808-20, despite widespread economic hardship throughout the country, Eastport

grew from a little fishing village to "a respectable town with a newspaper, banks and other institutions," says Smith.

Many of the large historical sea captains' mansions still standing in Maine communities speak of prosperity, respectability and order. The homeowners were often cultured, educated people, pillars of their communities, town fathers. More than likely, they also had smuggling profits to pay for their lifestyles, Smith says.

Maine's first governor, William King, was a wealthy merchant from Bath who was in charge of the state militia. "During the War of 1812, King found he could make a good profit selling provisions to the British military. In return, he got blankets from the British to sell to the American military and make a profit.

"He was elected governor in 1820. In 1824, in an attempt to discredit him, a pamphlet was published detailing his illegal activities. The plan backfired because the attitude of Maine people toward smuggling in those early days was, 'So what?'"

Today when Smith shares his history research with people in Maine coastal communities, they are intrigued. It is a give-and-take between people and their history that Smith believes is important, "because it then becomes a local resource."

by Margaret Nagle

Smith's research promises to improve our understanding of the subtle intersection of political, economic and social issues that shaped illegal and international trade, says Scott See, UMaine Libra Professor of History. "His work will give us a deeper appreciation of transborder events in North American history."

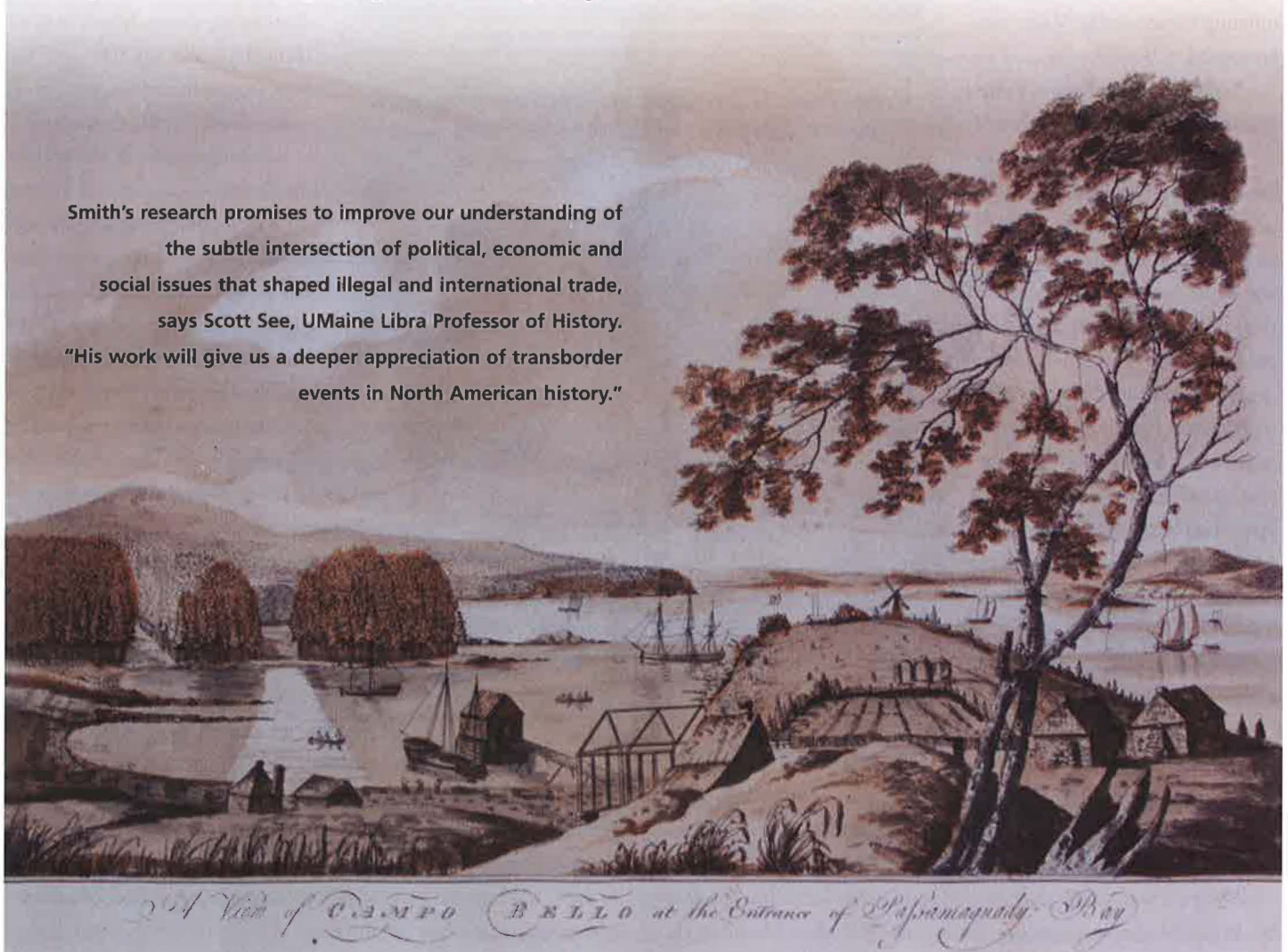


Plate 50, *The Atlantic Neptune* by Joseph Des Barres, Special Collections of The University of Maine Fogler Library

The Need for Nutrition

Extension brings nutrition education to Aroostook County's migrant community



Photo by Kathryn Olmstead

EVERY SUMMER, Cooperative Extension Nutrition Aide Christine Finemore helps address the nutrition education needs of Aroostook County's most transient population — migrant workers and their families.

It is where her heart is.

"I only see them for a short time each year. In July, it feels like a homecoming," says Finemore. "It's a wonderful population, and one in which I feel I can make a big difference. This is intensive nutrition education, empowering them for a lifetime."

Finemore is one of three nutrition aides in Extension's Presque Isle office and one of nine in Aroostook County who provide nutrition education to area residents in venues ranging from daycares and schools to homes and grocery stores.

She is the only aide working with the children of two populations of migrant workers in Aroostook County. For the past nine years, she has taught youngsters of Hispanic workers, primarily from Texas and Florida. In the past three years, she also has worked with a growing number of migrant children from Maine.

Migrant workers in Maine start arriving in the county in April. The largest number of workers and their families are there July-October. This summer, there were almost 70 youngsters.

Every Monday in July and

August, Finemore provides nutrition education at the East Coast Migrant Head Start in Caribou. There, youngsters ages 6 weeks to 16 years spend their days in educational activities while their parents work in the fields. In Mars Hill, Finemore works with preschoolers to pre-adolescents who are children of Maine migrant laborers.

With the help of an interpreter, Finemore leads a bilingual nutrition education workshop and writes a monthly newsletter for migrant parents.

Finemore's lessons about nutrition basics are the same for all youngsters and youths. For infants, nutrition information is directed to childcare staff and parents, including fact sheets in English and Spanish.

Toddlers learn about different types of foods. Preschoolers learn what good food does for our bodies.

Older children learn where good food comes from, often by growing vegetables in raised-bed gardens. For pre-teens and adolescents, the nutritional messages focus on the need to eat well-balanced meals, how to shop cost-effectively for healthy foods, and how to address issues such as eating disorders.

Finemore, who received the 1999 National Paraprofessional of the Year Award from the National Extension Association of Family and Consumer Sciences, is now teaching nutrition programs to some of the

same children she rocked as infants. Particularly rewarding are the signs that her messages are getting through.

"One day between classes I was reading a list on the wall of the activities the children enjoyed most since coming to the program," Finemore says. "I was surprised to see they listed the garden I helped them plant and lessons I did with them, some several years ago."

"It was great to see that 'Mrs. Finemore' was right up there with roller skating."

by Margaret Nagle



Hands-on nutrition lessons, led by University of Maine Cooperative Extension Nutrition Aide Christine Finemore, include teaching youngsters how to make ice cream or pudding in sealable plastic bags.

Photo by Voscar



Photo by Kathy Rice

UMaine's Environmental Sensor Research Group in the Laboratory for Surface Science and Technology (LASST) brings together expertise from several academic departments to perform tasks ranging from basic science to applied technology in collaboration with industrial partners.

In sensor trials, several faculty, staff and students at LASST have been using non-hazardous chemicals that have properties similar to dangerous agents such as Sarin, a nerve gas used in the Tokyo subway attack in 1995. "These simulant molecules have important chemical end groups that mimic the real warfare agents but lack critical elements that would make them toxic," says Lad. Eventually, trials will have to be run at secure military sites with live agents.

LASST scientists are working with several private firms and military labs to develop sensors based on semi-conducting metal oxide, surface acoustic wave and fluorescence technologies. One of those projects involves the Naval Surface Warfare Center in Virginia on a project to adapt sensor components to silicon microchips. Such an adaptation would allow LASST designs to be further miniaturized and integrated with other electronic devices.

Potential applications for "chem/bio" sensing technologies include use by soldiers in the battlefield, use in ventilation systems in office buildings and in research leading to improved gas masks.

Sensors for Chemical and Biological Agent Detection

HEIGHTENED CONCERNS for national security have raised the profile of ongoing research on sensors for detection of chemical and biological weapons in the UMaine Laboratory for Surface Science and Technology (LASST).

Funded initially in 1998 by the Department of Defense, the lab's work on what has become known as the "chem/bio sensor project" has achieved some notable success, as well as an appreciation for the complexity of the task.

"We have succeeded in several crucial areas," says Robert Lad, LASST director and professor of physics. "We've produced semi-conducting metal oxide sensors on a sapphire crystal that are stable under a range of operating temperatures, and we've demonstrated a gas filtering system that appears to reliably separate target molecules, which is an important step in the detection process."

Ambassador Lectures on Campus

THE CURRENT relationship between the United States and Russia was the subject of a Sept. 7 talk on campus by Thomas Pickering, undersecretary of state for political affairs in the Clinton administration and a former U.S. ambassador to the Russian Federation.

His visit was co-sponsored by the William S. Cohen Center for International Policy and Commerce in the UMaine College of Business, Public Policy and

Health, and by the World Affairs Council of Maine.

Pickering's address was part of the Cohen Center's lecture series on international policy and commerce.

Other William S. Cohen lecturers have been retired U.S. Senator and astronaut John Glenn, and then Secretary of State Madeleine Albright.

As Secretary of Defense, William Cohen gave the inaugural address of the lecture series in 1998.



Thomas Pickering

Quintessential Quartet

Graduate String Quartet Program in Its Third Year

THE NEWEST ARTISTS-IN-RESIDENCE in the School of Performing Arts are members of the UMaine/Bangor Symphony Orchestra Graduate String Quartet. They are, clockwise from left, Yosuke Kawasaki, first violin; Jethro Marks, viola; Georgy Valtchev, second violin; and Inna Nassidze, cello.

Annually, four students are selected from a nationwide search to enter the quartet and perform with the Bangor Symphony.

In addition, the quartet travels to schools throughout the state to perform and conduct workshops for students.

Diane Roscetti, School of Performing Arts director, is in charge of the program, arranging all performances and outreach, and serving as faculty coach and mentor.

All four of the quartet members are award-winning artists in the international spotlight.

Photo by Michele Stapleton





A Hole in One for the Maine Economy

WHEN GOLFERS teed off at one of Maine's 138 courses in 1999, they contributed more than \$200 million in revenues and additional spending to the state economy.

"The industry is clearly a significant part of the economy. Golf is a factor in every county of the state, even though it is concentrated in the southern and coastal counties,"

says Todd Gabe, assistant professor of resource economics and policy at The University of Maine.

Gabe and Tom Allen, an assistant scientist in UMaine's Department of Resource Economics and Policy, surveyed golf course owners and managers, as well as studies of tourism and spending by golfers. They used figures for 1999, the last year for which complete statistics were available at the time of the study.

Green fees and memberships are

the primary sources of income for golf courses. The industry in Maine supports more than 4,700 workers.

On average in Maine, a golf course generated about \$50 in revenues for an 18-hole round of golf in 1999. Out of the total 1.7 million rounds of golf that year, about 516,000 were played by non-residents of Maine.

Since 1990, 22 new courses have opened in Maine and, as of last March, five more were under construction.

HAY!

TO HELP livestock producers get through the winter, The University of Maine Cooperative Extension is again offering the Maine Hay Directory, an online listing of hay and forage sellers and buyers in the region (www.umaine.edu/livestock/hay.htm). The directory, created during a forage shortage three years ago, lists contacts that have or need forage and hay in Maine and Eastern Canada.



Photo by Tim Boyd

Fighting Fungus in the Blueberry Barrens

UNIVERSITY OF MAINE biologists Seanna Annis and Connie Stubbs are a fungus-fighting duo. Their mission: to help Maine blueberry growers protect their crops.

The two scientists are coordinating a multi-year research effort to identify the different types of fungi present in blueberry plants, to understand which types cause problems and to develop protective steps that growers can take.

Growers requested the study to find out if they could reduce losses from fungal diseases.

Mummyberry, caused by a fungus, is the most prevalent disease, and growers now take steps to control it. However, changing crop production practices, such as the increasing use of irrigation and mowing, could contribute to other diseases.

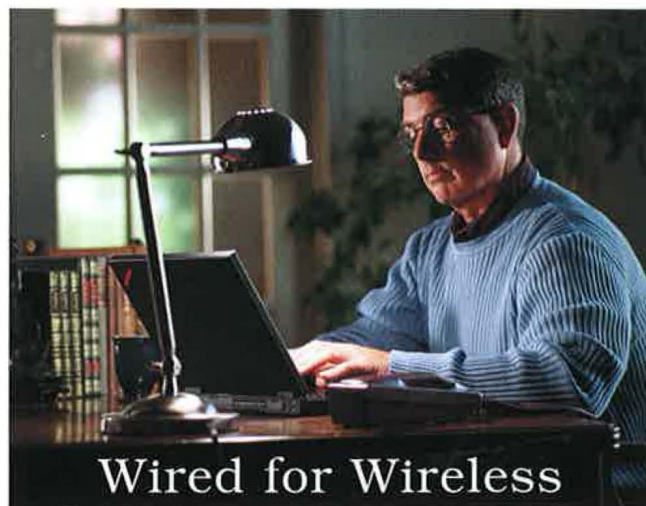
David Bell, director of the Maine Wild Blueberry Commission, calls the research critical for

the future of the industry. "For a long time, growers have recognized that there are other fungal diseases in the fields. This research will help them understand if and how much they affect yield and how their cropping practices might encourage or minimize them. It's an important long-term investment."

The researchers have found 122 different genera or groups of fungal species on blueberry plants. A single infected plant tends to have many types of fungi living within its tissues.

Annis and Stubbs, working with post-doctoral researchers and undergraduate students from UMaine and other colleges, collected stems from 31 fields in 1999, 20 fields in 2000 and 12 fields this year.

"I'm convinced that we'll find species of fungi that have not been described in the scientific literature before," says Annis.



Wired for Wireless

SHIBLES HALL, home of the College of Education and Human Development, is a prototype in wireless technology for The University of Maine campus.

While other UMaine facilities have some wireless capacity and services, Shibbles is now 100 percent wired for wireless, with a power hub system capable of handling up to 100 portable computers.

The result: flexibility to instantly create a technologically rich environment in any classroom.

"Wireless technology allows our faculty and students to concentrate on teaching and learning with technology, not on circuits and cables," says the college's dean, Robert Cobb.

Access points installed during the past year provide building-wide access to the Internet and other networks for any properly configured portable computer.

The infrastructure for the new wireless technology at Shibbles was made possible by a \$5,000 gift from Marion Rich Waterman Meyer, a 1951 UMaine graduate, career educator and former assistant dean at the Syracuse University School of Management.

Patent to Help Paper Mills



DUPONT has donated patent rights to The University of Maine for new papermaking technology that may increase the efficiency and environmental performance of paper mills.

UMaine chemical engineers will work with Sappi Fine Paper North America, which has paper mills in Somerset and Westbrook, Maine, to explore ways to refine the patented retention additive technology and make it commercially viable.

DuPont selected UMaine from a number of universities to receive the donation, based on its ability to develop the technology, its scientific reputation, and its capability for adding value and eventually commercializing the technology. Research will be done by scientists and engineers in the University's Pulp and Paper Process Development Center.

A rigorous process determined who would receive the technology,

says Stephen Craft, manager of technology licensing and sales manager for DuPont. "There were many high-ranking universities around the country that were competing, but . . . from the word go, I think I knew The University of Maine was 'it.'"

The patented technology developed by DuPont allows paper to retain more fibers and chemicals, a savings in both paper production and wastewater treatment.

Potential revenues stemming from use of the technology will depend on research results and market conditions.

"We are delighted to be the commercial partner in this relationship," says Douglas Daniels, mill manager in Somerset for SAPPi Fine Paper North America. "We are the leader for coated fine paper in the world. And we'll take one machine at a time and convert to this technology because it's smart business."

Technology Enhances Native American Studies

TWO PROFESSORS in one of the nation's premier American Indian studies programs will teach courses at The University of Maine from their classrooms at the University of Washington.

Two-way video technology is making the East-West connection possible. G. Thomas Colonnese, a Santee Sioux, and Marvin Oliver, Quinault/Isleta-Pueblo, both professors in the University of Washington's American Indian Studies Program, are teaching UMaine Continuing Education courses as Visiting Diversity Libra Professors.

Colonnese's course on the American Indian novel began in October. Oliver's course on two-dimensional art of Northwest Coast Indians begins in Winter Session.

The professors present their courses on-site at the University of Washington and via the Internet using compressed video technology to UMaine classrooms. During the classes, students in Orono and Seattle are able to interact with each other in real time.

In addition, the two scholars will come to campus to present public lectures and to interact with UMaine students and faculty, and members of Maine's Native American community.

WOMEN AND WAR



EXPERIENCES OF MILITARY women in wartimes are the focus of a women's studies class and oral history project at The University of Maine.

The semester-long course, *Women and War*, taught by historians Carol Toner and Mazie Hough, is offered statewide via streamed live video on the Internet. To learn about the changing role of women in the military, and how those changes reflect evolving social constructions of womanhood in American society, students study the history of Maine and wars throughout the world, feminist theory and the methodology of oral history. They then interview women who served in the military, beginning with World War II.

This semester, students interviewed women who served in the Vietnam and Gulf Wars.

The interviews are being compiled as part of the Maine Women Veterans Oral History Project, sponsored by UMaine and the Maine Commission on Women Veterans.

Inspiration for an oral history project on military women came from Donna Loring, the representative of the Penobscot Nation to the state legislature and chair of the Maine Commission on Women Veterans.

The Margaret Chase Smith Library in Skowhegan, Maine, provided initial funding to transcribe the taped interviews. As a U.S. senator, Smith wrote the Women's Armed Services Integration Act of 1948, which gave women permanent status in the military.

Snowmobiling Cleaner, Quieter

UNIVERSITY OF MAINE mechanical engineering students are building a quieter, more environmentally friendly snowmobile.

Last year, a student team worked with Assistant Professor of Mechanical Engineering Mick Peterson to test noise levels, power output and emissions generated by a 1994 snowmobile. This fall, they modified the engine to make it run cleaner without sacrificing performance.

The students found that, although noise levels have been

reduced considerably since the machines were first developed, emissions have not. Their tests showed that one week of snowmobiling generates air pollutants equivalent to one year of driving the average car. In addition, on a 1,500-mile run, snowmobile emissions equate to about 30 gallons of unburned fuel.

The UMaine student engineers' improved model will be entered in the third annual Clean Snowmobile Competition, which is a national event of the Society of Automotive Engineers.



LASTING IMPRESSION

IN TOM WOLFE'S CLASSIC book about the early U.S. space program, Robert Rushworth was one of a band of death-defying test pilots revered for having *The Right Stuff*.

A native of Madison, Maine, Rushworth graduated from The University of Maine in 1951 with a degree in mechanical engineering. He was a decorated fighter pilot in both the Korean and Vietnam wars.

Rushworth became Maine's first astronaut as pilot of the X-15. Half plane, half rocket ship, the X-15 was the nation's first manned re-entry vehicle, pre-dating the Space Shuttle. Launched from beneath the wing of a B-52, the X-15 was for years the world's fastest and highest-flying winged aircraft.

From 1960–68, Rushworth flew the X-15 34 times — more often than anyone else. He flew as high as 54 miles above Earth at almost 3,600 mph. By the end of his 38-year Air Force career in 1981, Major General Rushworth had logged more than 6,900 flying hours in more than 50 different aircraft.

Rushworth was inducted into the National Aviation Hall of Fame and the International Space Hall of Fame, alongside Amelia Earhart, Neil Armstrong, the Wright Brothers, and other courageous aviation pioneers. Rushworth died in 1993 at the age of 68.

In each issue, "Lasting Impression" features a memorable person or event in UMaine history.





Forests for the Future

WITH ONE OF THE oldest forestry programs in the nation, The University of Maine has been instrumental in the stewardship of the state's woodlands. University research has affected the health of forests in Maine and around the world. Foresters and resource management experts have been trained, and partnerships have developed with constituents ranging from woodlot owners to forest products industries.

In the last nine years, that stewardship has taken on a new dimension. With the establishment of the Green Endowment of Forest Land, the College of Natural Sciences, Forestry, and Agriculture benefits from private donations of woodlands to the University of Maine Foundation, which currently total more than 5,500 acres. Gifts of forestland to the University of Maine Foundation ensure that the private tracts will be managed on a sustained-yield basis using the best forestry practices.

Established in 1992, the Green Endowment offers alumni, industry and friends the opportunity to give woodlots to the University. The University of Maine Foundation takes title to the gifted woodland on behalf of the college. The college manages the property and uses it for research and educational purposes.

The Green Endowment has become yet another way the University contributes to the management of the natural resources in Maine, which is 89 percent forestlands and the most heavily forested state in the country.

"This is such a natural for The University of Maine," says Amos Orcutt, president/CEO of the University of Maine Foundation, which manages the endowment. "If landowners want land preserved, why not let the state's largest university do it, managing the woodlands using the latest techniques and allowing research to be done that could impact future forests? It's logical for the state's land-grant institution to be a repository for lands. It's good for the state."

For years, The University of Maine has been working to increase productivity of forestlands, in the same way it has affected the potato, dairy and other natural resource industries in the state, Orcutt says. The benefit is in gaining a productive and ecologically sound forest, and in sharing the latest research with other forest owners and managers on issues ranging from timber harvest to conservation and woodlot improvement.



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